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Client/Matter: 082123-0275721

REMARKS

Claims 6-10 are pending. By this Amendment, claims 11 and 12 are cancelled without prejudice or disclaimer and claims 6-10 are amended. Reconsideration in view of the above amendments and following remarks is respectfully requested.

Entry of this Amendment is proper under 37 C.F.R. § 1.116 as the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not present any new issues that would require further consideration and/or search as the amendments merely incorporate the subject matter of dependent claims 11 and 12 into independent claim 6 and represent limitations to claim 6 that were previously considered; (c) do not add any new claims without canceling a corresponding number of claims; and (d) place the application in better condition for appeal, should an appeal be necessary, by reducing the number of claims and issues for appeal. The amendments are necessary and were not earlier presented as they are in response to arguments raised in the final rejection.

Claims 6-10 were rejected under 35 U.S.C. § 102(e) over Li (U.S. Patent 6,453,068). The rejection is respectfully traversed.

Claim 6 recites a CMOS image sensor having an array of unit pixels each of which outputs digital image data corresponding to one or more characteristics of light incident thereon, for detecting and compensating for a defective pixel. The CMOS image sensor includes a defective pixel detection circuit constructed and arranged to determine whether or not a target pixel is defective based on check condition and a compensation circuit constructed and arranged to compensate the image data of a target pixel deemed to be defective and output compensated image data. The check condition is whether a value of the target pixel is larger than a first value, which multiplies a first coefficient by a maximum value of adjacent normal pixels, or smaller than a second value, which multiplies a second coefficient by a minimum value of adjacent normal pixels. A compensation circuit is constructed and arranged to compensate the image data of a target pixel deemed to be defective and output compensated image data. The defective pixel detection circuit includes a first line memory for storing therein the image data fed thereto from the unit pixel on a line-by-line basis; a second line memory for receiving the image data stored in the first line memory and storing the same therein; and a 3 x 3 two-dimension space filter for receiving the

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image data fed thereto from the second line memory, the image data inputted thereto from the first line memory and the image data provided thereto from the unit pixel, and respectively storing each of the digital image data in a first set of lines, a second set of lines, and a third set of lines.

Li does not disclose or suggest a CMOS image sensor, as recited in claim 6. As disclosed in column 1, lines 55-62 of Li, the apparatus receives input digital image data defining a plurality a plurality of pixels of an input color digital image. As used by Li, the term "pixel" is a basic unit of composition of the input color digital image, and does not output digital image data corresponding to one or more characteristics of light incident thereon as recited in claim 6.

Furthermore, claim 6 recites a 3 x 3 two-dimension space filter in the defective pixel detection circuit. According, there are only two line memories, or data buffers, for simultaneously transmitting data of three pixel lines to the 3 x 3 two-dimension space filter. Therefore, the circuit size of the image sensor is reduced and the operation speed is increased. Although Li suggests that the FIR filter may be any size, there is no suggestion by Li of reducing the size to achieve the advantage discovered by Applicant.

Additionally, if the target pixel is deemed to be defective, the image data of the target pixel is substituted by either the minimum or maximum pixel value of the adjacent normal pixels. Li, on the other hand, calculates an overshoot or undershoot (i.e., negative undershoot) amount and compensates the target value according to a predetermined ratio. Thus, the operation speed of the claimed invention is faster than that of Li. Moreover, the apparatus of Li cannot be applied to a CMOS image sensor because its size and algorithms are not compatible with CMOS image sensors.

As Li does not disclose or suggest all the features of claim 6, Li cannot anticipate or render obvious claim 6.

Claim 7-10 recite additional features of the invention and are allowable for the reasons discussed above with respect to claim 6 and for the additional features recited therein.

Reconsideration and withdrawal of the rejection under 35 U.S.C. §102(e) over Li are respectfully requested.


In view of the above amendments and remarks, Applicant respectfully submits that all of the claims are allowable and that the entire application is in condition for allowance.

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Should the Examiner believe that anything further is desirable to place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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